IN THE CLAIMS

1-22 (cancelled) ~~Device for measuring fluorescence excited by light, which has at least one layer which is applied to a support and which at least one planer layer contains a fluoresceing material, having at least one light source which emits light of at least one wavelength that excites fluorescence(s) and thus fluorescent light in the at least one layer, and which light is directed through the support onto the at least one layer by at least one first optical conductor, the fluorescent light being directed by at least one second optical conductor onto at least one detector for determining the intensity of the fluorescent light, wherein the end faces of all the optical conductors are arranged relative to one another as a function of their numerical apertures and with reference to the position of the at least one layer containing a fluoresceing material, and the at least one second optical conductor which are arranged as a bundle in the shape of a ring are arranged with the at least one optical conductor, arranged in the interior of the ring, which bundle is used for exciting light or for generating fluorescence light, or the at least one first optical conductor comprises a plurality of first optical conductors and the at least one second optical conductor comprising a plurality of second optical conductors, and a plurality of the first optical conductors are arranged in series arrangements opposite one another, with ones of the first optical conductors and corresponding ones of the second optical conductors forming pairs, such that it is possible to achieve a defined localized distribution of measurable fluorescence intensity, and the light source(s), the first and second conductors and the detector(s) are held in a measuring head.~~

23. (currently amended)

A device for measuring fluorescence excited by light comprising:

a) a support;

b) at least one layer of a material applied to the support, the at least one layer of material having a planar fluorescing layer containing a fluorescing material;

c) at least one light source which emits light of at least one wavelength which excites at least one fluorescence, and thus, fluorescent light, in the at least one layer;

d) at least one first optical conductor which directs the light from the at least one light source directly into or in the direction of the at least one planar layer of material;

e) at least one detector for measuring the intensity of the fluorescent light;

f) at least one second optical conductor receiving the fluorescent light generated in the at least one layer, the at least one second optical conductor directing the fluorescent light onto the at least one detector; and

g) a measuring head holding the at least one first optical conductor, the at least one second optical conductor, and the at least one light source;

wherein the end faces of the at least one first optical conductor and the at least one second optical conductor are arranged relative to one another as a function of their numerical apertures and as a

function of the at least one planar layer of material to achieve accurate local assignment of the measured values of the intensity of the fluorescent light, and wherein the at least one first optical conductor and the at least one second optical conductor are arranged as a bundle in the shape of a ring with the at least one first optical conductor arranged in the interior of the ring

24. (previously presented) Device according to claim 23, wherein a part of the measuring head holds outer ends of the optical conductors, and at least the part of the measuring head which holds the outer ends of the optical conductors is of flexible construction.

25. (previously presented) Device according to claim 23, wherein the measuring head has an upper region, which is at least partially bent.

26. (previously presented) Device according to claim 23, wherein at least one of a filter, a system of exchangeable filters or a launching optical system is arranged between the light source and at least one first optical conductor.

27. (currently amended) Device according to claim 23, wherein at least one of the optical conductors consist of conductors receiving the fluorescent light and optical conductors transmitting the exciting light from the light source are arranged in the shape of a ring, a circular arc or a star on an end of the measuring head pointing independent to each other towards the at least one layer containing fluorescing material.

28. (currently amended) Device according to claim 27, wherein ~~the~~ at least one ~~second~~ of the second optical conductors is arranged in an inner ring or first and second optical conductors are arranged in form of a ring with an alternating arrangement.

29. (previously presented) Device according to claim 23, wherein the at least one first and the at least one second optical conductors are inclined at different angles with their ends pointing towards the fluorescing layer.

30. (previously presented) Device according to claim 23, wherein there is arranged on an upper measuring head region a heater having a temperature sensor and a controller or regulator which is arranged in the measuring head and maintains a prescribable temperature at the fluorescing layer(s).

31. (previously presented) Device according to claim 23, wherein the support, which is transparent to exciting light and fluorescent light has a surface which contains partially polished or reflecting surface regions or is surrounded by a medium of lower refractive index, and is mounted in an exchangeable fashion on the measuring head.

32. (currently amended) Device according claim 31, wherein exciting light is launched into the support with the aid of at least one optical conductor such that the exciting light is totally reflected at least in the region of the layer, and attenuated total reflection occurs.

33. (previously presented) Device according to claim 31, wherein the support is constructed in an elongated fashion in a plane.

34. (previously presented) Device according to claim 31, wherein the support is subdivided along its longitudinal axis into a plurality of regions.

35. (previously presented) Device according to claim 31, wherein, on an end face opposite an end face into which the exciting light can be launched, the support has an angular surface and a layer of the at least one layer which contains fluorescing material and at which the exciting and fluorescing light is reflected in the direction of a planar optical conductor constructed symmetrically relative to the support, and the light from the angular surface thereof is directed onto an end face arranged at the other end of an optical conductor, and from there at least fluorescent light is directed onto a detector via at least one of the optical conductors, the support and planar optical conductor being arranged at a spacing from one another or being optically separated into the region of the angular surface.

36. (previously presented) Device according to claim 31, wherein the support is of u-shaped construction comprising two limbs, the two limbs are optically separated from one another, and the exciting light can be launched into an end face of a limb via at least one additional optical conductor, and at least fluorescent light can be coupled out via the end face of the other limb into at least one further optical conductor, which at least one additional optical conductor and at least one further optical conductor are in addition to the at least one first and at least one second optical conductors.

37. (previously presented) Device according to claim 36, wherein the two limbs of the u-shaped support are connected in the shape of a bow, a wedge or a cone, or by means of an angular web.

38. (currently amended) Device according to claim 23, wherein at least one of heating elements or temperature sensor elements are integrated into the support.

39. (previously presented) Device according to claim 23, wherein between one of the optical conductors and one of the at least one layers containing the fluorescing material, a transparent body made from optically scattering material is arranged or a body comprising a diffusely scattering surface is positioned facing the layer.

40. (currently amended) Device according to claim 39, wherein the body is formed from optically transparent material which contains light-scattering particles or a material in which a wavelength specific absorption occurs.

41. (previously presented) Device according to claim 23, wherein at least one further optical conductor directs reference light onto a further detector for detecting a reference signal.

42. (previously presented) Device according to claim 23, wherein an upper heated region is thermally insulated with respect to a lower region, in which lower region the light source(s) and the detector(s) are held.

43. (previously presented) Device according to claim 23, wherein said device is configured to detect fluorescence-quenching, fluid materials.

44. (previously presented) Device according to claim 23, wherein the support is configured to receive heating elements.

45. (new) A device for measuring fluorescence excited by light comprising:

a) a support;

b) at least one layer of a material applied to the support, the at least one layer of material having a planar fluorescing layer containing a fluorescing material;

c) at least one light source which emits light of at least one wavelength which excites at least one fluorescence, and thus, fluorescent light, in the at least one layer;

d) at least one first optical conductor which directs the light from the at least one light source directly into or in the direction of the at least one planar layer of material;

e) at least one detector for measuring the intensity of the fluorescent light;

f) at least one second optical conductor receiving the fluorescent light generated in the at least one layer, the at least one second optical conductor directing the fluorescent light onto the at least one detector; and

g) a measuring head holding the at least one first optical conductor, the at least one second optical conductor, and the at least one light source,

wherein the end faces of the at least one first optical conductor and the at least one second optical conductor are arranged relative to one another as a function of their numerical apertures and as a function of the at least one planar layer of material to achieve accurate local assignment of the measured values of the intensity of the fluorescent light, and wherein the at least one first optical conductor and the at least one second optical conductor are arranged in row arrangements, opposite one another in pairs, the rows being aligned parallel to a longitudinal axis of the measuring head.

46. (new) Device according to claim 45, wherein a part of the measuring head holds outer ends of the optical conductors, and at least the part of the measuring head which holds the outer ends of the optical conductors is of flexible construction.

47. (new) Device according to claim 45, wherein the measuring head has an upper region, which is at least partially bent.

48. (new) Device according to claim 45, wherein at least one of a filter, a system of exchangeable filters or a launching optical system is arranged between the light source and at least one first optical conductor.

49. (new) Device according to claim 45, wherein at least one of the optical conductors consist of conductors receiving the fluorescent light and optical conductors

transmitting the exciting light from the light source are arranged in the shape of a ring, a circular arc or a star on an end of the measuring head pointing independent to each other towards the at least one layer containing fluorescing material.

50. (new) Device according to claim 45, wherein at least one of the second optical conductors is arranged in an inner ring or first and second optical conductors are arranged in form of a ring with an alternating arrangement.

51. (new) Device according to claim 45, wherein the at least one first and the at least one second optical conductors are inclined at different angles with their ends pointing towards the fluorescing layer.

52. (new) Device according to claim 45, wherein there is arranged on an upper measuring head region a heater having a temperature sensor and a controller or regulator which is arranged in the measuring head and maintains a prescribable temperature at the fluorescing layer(s).

53. (new) Device according to claim 45, wherein the support, which is transparent to exciting light and fluorescent light has a surface which contains partially polished or reflecting surface regions or is surrounded by a medium of lower refractive index, and is mounted in an exchangeable fashion on the measuring head.

54. (new) Device according claim 51, wherein exciting light is launched into the support with the aid of at least one optical conductor such that the exciting light is totally reflected at least in the region of the layer, and attenuated total reflection occurs.

55. (new) Device according to claim 51, wherein the support is constructed in an elongated fashion in a plane.

56. (new) Device according to claim 51, wherein the support is subdivided along its longitudinal axis into a plurality of regions.

57. (new) Device according to claim 51, wherein, on an end face opposite an end face into which the exciting light can be launched, the support has an angular surface and a layer of the at least one layer which contains fluorescing material and at which the exciting and fluorescing light is reflected in the direction of a planar optical conductor constructed symmetrically relative to the support, and the light from the angular surface thereof is directed onto an end face arranged at the other end of an optical conductor, and from there at least fluorescent light is directed onto a detector via at least one of the optical conductors, the support and planar optical conductor being arranged at a spacing from one another or being optically separated into the region of the angular surface.

58. (new) Device according to claim 51, wherein the support is of u-shaped construction comprising two limbs, the two limbs are optically separated from one another, and the exciting light can be launched into an end face of a limb via at least one additional optical

conductor, and at least fluorescent light can be coupled out via the end face of the other limb into at least one further optical conductor, which at least one additional optical conductor and at least one further optical conductor are in addition to the at least one first and at least one second optical conductors.

59. (new) Device according to claim 58, wherein the two limbs of the u-shaped support are connected in the shape of a bow, a wedge or a cone, or by means of an angular web.

60. (new) Device according to claim 45, wherein at least one of heating elements or temperature sensor elements are integrated into the support.

61. (new) Device according to claim 45, wherein between one of the optical conductors and one of the at least one layers containing the fluorescing material, a transparent body made from optically scattering material is arranged or a body comprising a diffusely scattering surface is positioned facing the layer.

62. (new) Device according to claim 61, wherein the body is formed from optically transparent material, which contains light-scattering particles, or a material in which a wavelength specific absorption occurs.

63. (new) Device according to claim 45, wherein at least one further optical conductor directs reference light onto a further detector for detecting a reference signal.

64. (new) Device according to claim 45, wherein an upper heated region is thermally insulated with respect to a lower region, in which lower region the light source(s) and the detector(s) are held.

65. (new) Device according to claim 45, wherein said device is configured to detect fluorescence-quenching, fluid materials.

66. (new) Device according to claim 45, wherein the support is configured to receive heating elements.